REMARKS

Status of the Claims

Claims 20 and 21 have been previously withdrawn from consideration.

Claim 1 has been amended.

Claims 2-14 and 17-19 have been canceled without prejudice or disclaimer of the subject matter contained therein.

No new matter has been added.

Claims 1 and 15-16 are pending for examination.

Information Disclosure Statement

The Examiner states that a listing of references in the Specification is not a proper Information Disclosure Statement and that those references listed in the specifications of the present application may not have been considered. Applicants would like to respectfully point out that the only reference listed in the specification is Japanese Patent No. JP 3,309,970 and that this reference was cited in an Information Disclosure Statement filed on April 18, 2005 but the accompanying PTO\SB\08 was not initialed by the Examiner. A copy of the SB\08 and the translated abstract of the reference are enclosed and Applicants respectively request that it be considered and the SB\08 be initialed.

Objection to the Specification

The Examiner objects to the disclosure because the text incorrectly specifies the units for the average particle diameter as "„m". Applicants amend the specification to correct this objection herein.

Rejection Under 35 U.S.C. §103

Claims 1, 3, 13, 16, and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over at least one of Kondo (European Patent Appl. EP-1170075), and further in view of Voss (U.S. Patent No. 4,707,309); claims 2, 5, 6, 7, 10, 14, and 15 are rejected over Kondo and Voss, and further in view of Murata (International Appl. No. PCT/US97/10108); claim 8 is rejected over Kondo and Voss, and further in view of Holinksi (U.S. Patent No. 5,445,748); and claims 4, 9, and 11 are rejected over Kondo and Voss, and further in view of Lemmerman (U.S. Patent No. 1,967, 830).

Kondo discloses such that:

> [0015] Namely, when a die which has been heated to 100 DEG C or more and applied with such a metal salt of higher fatty acid as lithium stearate on an inner surface is used and iron powder is pressed under not less than 600MPa, it is assumed that the heating of the die to 100 DEG C or more promotes chemical bonding of the metal salt of higher fatty acid and the iron powder, and a coating of an iron salt of higher fatty acid, for example, a **monomolecular film** of iron stearate is formed on a compact surface. As a result, friction between the iron powder compact and the die is decreased...

The Examiner commented that the above disclosure could be cited as evidence of the earlier disclosure that "said solution has said lubricant completely dissolved in water to have a concentration greater than or equal to a concentration at which the thickness of a crystallized layer is formed by one molecule of the lubricant".

Applicants respectfully disagree with the Examiner. Applicants believe that Kondo does not disclose that a **monomolecular film** is formed in a portion applied with the lubricant, but that "*when the lubricant is applied, and iron powder is pressed under not less than 600MPa to thereby cause chemical bonding of the metal salt and the iron powder, a chemically bonded* ***monomolecular film*** *is formed on a compact surface.*" Thus, nowhere in Kondo can any disclosure or suggestion be found that the crystallized layer of the lubricant is formed on a surface of the forming portion to which the lubricant is applied.

It should be called to the Examiner's attention that Kondo describes that "*[0048] higher fatty acid lubricant powder is added and dispersed in the aqueous solution thus containing the surfactant, prior to the description that [0050].... a 10 to 20 times dilution of the aqueous solution treated by the ball-mill pulverization process is used for application.*" In the Office Action, the Examiner asserted that these descriptions disclose the feature that the lubricant is "completely dissolved in water." Kondo, however, does not describe that the aqueous solution is the one where the lubricant is completely dissolved, but simply names a solution containing the surfactant and the lubricant dispersed therein as an aqueous solution. In fact, Kondo employs water-insoluble lithium stearate, describing that *"[0050]....It is more preferable to dilute the solution so as to contain 0.5 to 2% by weight of the lubricant"*, which is clearly not the concentration at which lithium stearate is completely dissolved in water.

In other words, what is taught by Kondo is merely the art utilizing the one comprised of a certain phase and other substances dispersed in the phase in a pulverized condition, not the one utilizing the crystallized layer or the deposit (crystallization) from the solution.

The difference between "dispersion" and "crystallization" that enables the thickness of the applied lubricant to be reduced to the least possible is a great factor affecting the thickness of lubricant after evaporation.

As for the other cited references, they disclose totally different uses from that of the present invention, only disclosing the use of lubricant in an aqueous solution state (Lemmerman), the use of lubricant in an aqueous solution or a suspending or the use of lubricant in which droplets are dried by a hot air and then attached to a die (Voss), the use of lubricant in a solid powder (Holinsi), and the use of lubricant as a mixture of oil or solid lubricant (Murata). In view of any of the above prior art references, it would have still been unobvious to those skilled in the art to form such a crystallized layer that enables the thickness of the lubricant to be the least possible simply by completely evaporating the solvent by heating the die or the like after applying the solution in which the lubricant is completely dissolved to the die, as is proposed by the present invention.

It should also be noted that differences in use matters much to the lubricants. The five cited references list typical lubricants, which would be increased in number to list a large number of lubricants if the range of usage of lubricant is broadened.

In actual use, typical lubricants sometimes become unsuitable for lubrication, depending upon the use thereof, and there does exist a suitable lubricant according to use. It would not have been obvious to those skilled in the art to determine which specific lubricant is most suitable for a specific use. The reasoning is discussed in the Declaration signed by both inventors, attached hereto as Exhibit A (hereinafter the "Declaration").

For example, in the Declaration, paragraph 8, it is noted that graphite is known to act as a lubricant in the air, but not in a vacuum. This is an example that certain lubricants cannot be suitable for all purposes just because it is suitable just for one use.

For compaction molding of Fe-based or Cu-based metal powders, the conventional lubricants used are water-insoluble. Japanese Pharmacopoeia Standard defines a substance as water-insoluble if 10,000 ml or more of a solvent is required to dissolve 1g of the substance. For example, the lubricants indicated as appropriate have been, unexceptional, water-insoluble ones. *See*, Japanese Unexamined Patent Application Publication No. H9-292901 and the Declaration, paragraph 9.

One of ordinary skill is aware of risks in adopting a water-soluble chemical substance may cause, since a water-soluble chemical substances have not been used in the part a water-soluble chemical substance may cause, since a water-soluble chemical substances have not been used in the part risks that i) a flow of a material powder is hindered so that molding may become impossible if a water-soluble chemical substance having moisture-absorption characteristics is used, as compaction molding is normally performed with lubricant being mixed in a material powder; ii) it is unknown what problems a water-soluble chemical substance may cause, since a water-soluble chemical substances have not been used by those skilled in the art. Plus, those skilled in the art based, would

be directed only to the conventional water-insoluble lubricants, excluding any water-soluble chemical substances. *See*, the Declaration, paragraph 10.

Next is shown a comparison of conventional lubricants with those according to the present application, in which the solvent is water, and concentrations of the lubricants are uniformly 1%. With regard to the solubility to water, the indication: "insoluble" is given in the case that it is deemed almost insoluble according to the Japanese Pharmacopoeial Standard. This is detailed in the Declaration, paragraph 11.

Comparison Tables

Lubricants	Solubility to Water	Spray Atomization	Condition of Compact
zinc stearate	insoluble	clogging occurs	gouging or large scratch formed due to the clogging
graphite	insoluble	clogging occurs	gouging or large scratch formed due to the clogging
boron nitride	insoluble	clogging occurs	gouging or large scratch formed due to the clogging
calcium stearate	insoluble	clogging occurs	gouging or large scratch formed due to the clogging
magnesium stearate	insoluble	clogging occurs	gouging or large scratch formed due to the clogging
iron stearate	insoluble	clogging occurs	gouging or large scratch formed due to the clogging
lubricant according to the present invention	readily soluble	no clogging occurs	no gouging occurs

Lubricants	Solubility to Water	Brush Application	Condition of Compact
zinc stearate	insoluble	applied non-uniformly	roughness occurs at the non-uniformly applied portion
graphite	insoluble	applied non-uniformly	roughness occurs at the non-uniformly applied portion
boron nitride	insoluble	applied non-uniformly	roughness occurs at the non-uniformly applied portion
calcium stearate	insoluble	applied	roughness occurs at the non-

		non-uniformly	uniformly applied portion
magnesium stearate	insoluble	applied non-uniformly	roughness occurs at the non-uniformly applied portion
iron stearate	insoluble	applied non-uniformly	roughness occurs at the non-uniformly applied portion
lubricant according to the present invention	readily soluble	applied uniformly	no roughness occurs

According to the present invention, the above-mentioned water-soluble lubricants are completely dissolved in water in less than a concentration of saturated solution so as to be in a uniform phase, to thereby form a crystallized layer on a surface of a forming portion. Thus, it is totally different from the conventional ones in which the water-insoluble lubricants are dispersed in water.

Further, any of the cited prior art documents are totally silent with such powder metallurgical feature of the present invention that a sintered compact is produced through a sintering process, after pressure-molding Fe-based or Cu-based material powders in a mold to thereby effect a growth of the crystallized layer, enabling an extremely precise lubricating layer to be formed.

In addition to the foregoing, employment of the lubricants listed in the amended claim 1 of the present application can achieve excellent average ejecting force and average compact density which could not be achieved by the conventional arts. The listing of the foregoing lubricants are supported by the Tables 1, 2 and 3 in the Specification originally filed. By employing these lubricants, the average ejecting force can be remarkably reduced as compared to the comparative example, and average compact density can also be improved reliably.

Accordingly, Applicants respectfully submit that Applicants' invention as claimed in amended independent claim 1 is neither anticipated nor made obvious by the cited prior art, and stands in condition for allowance. Claims 15 and 16 depend from independent claim 1 and, therefore, for the reasons noted above, are also considered to be in condition for allowance.

Non-Statutory Double Patenting Rejection

Claims 1-11 and 13-19 are provisionally rejected on the ground of non-statutory double patenting over claims 1-11 and 13-19 of co-pending Application No. 10/598,413 ("the '413 application").

Applicants believe that the provisional double-patenting rejection can be overcome based on the difference in scope of the claims as amended and described above. However, if it is the Examiner's position that the present amendments do not distinguish the claims, Applicants note that this is the earlier filed of the two applications. Thus, this case should be passed to issue and the Double Patenting rejection be properly raised in the '413 application.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

The Examiner is respectfully requested to contact the undersigned at the telephone number indicated below if the Examiner believes any issue can be resolved through either a Supplemental Response or an Examiner's Amendment.

Dated: January 16, 2009

Respectfully submitted,

By _____
Louis J. DelJuidice
Registration No.: 47,522
DARBY & DARBY P.C.
P.O. Box 770
Church Street Station
New York, New York 10008-0770
(212) 527-7700
(212) 527-7701 (Fax)
Attorneys/Agents For Applicant